

FELLOWS-IN-TRAINING & EARLY CAREER PAGE

Organizing a Career in Global Cardiovascular Health



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The World Health Organization, the Global Alliance for Chronic Disease, the Institute of Medicine, and the National Heart, Lung, and Blood Institute have all emphasized the need for global health research, particularly in chronic diseases (1-4). However, the need for chronic disease researchers, particularly researchers in cardiovascular diseases, does not match the workforce capacity at present (4). Fellowship is a common time to develop specific areas of research interest and may provide an excellent opportunity to initiate global chronic disease research (5). As a general cardiovascular disease fellow, I have had the unique opportunity to pursue 10 months of post-doctoral research training in India, under the funding of the United States Fulbright Student Award and the Fogarty Global Health Fellowship.

Early in my medical training, my interest in health care advocacy and equitable access to health care resources made it clear to me that I wanted to incorporate a component of international work into my training and ultimately my career. Other reasons commonly cited to pursue global health research include increased immigration to the United States, the desire of U.S. residents to travel, globalization of the economy and overseas business interests, more Americans living abroad, the pursuit of global disease reduction, the desire for bidirectional information transfer, intellectual fascination with diseases not commonly seen in one's home country, as well as ethical, humanitarian, and spiritual motivations (5).

Although my clinical training with plans to pursue interventional cardiology may seem at odds with my interest in global health, unique fellowship opportunities have allowed me to meld my interests into a training program that I hope will set the groundwork for my career. Here, I present the funding pathways I pursued, my projects, and the value of overseas research training to my future pursuits.

The Fulbright U.S. Student Award, a 9-month award funded by the U.S. Department of State, is granted in various fields including the arts, sciences, and social sciences, with the goal of "increasing mutual understanding between the United States and the people of other countries" (6). Eligible applicants are U.S. citizens who hold a bachelor's degree, who are master's or doctoral candidates, or who are young professionals. Some academic institutions have a designated Fulbright Program Adviser who can help an applicant navigate the application process and provide insight into areas of interest germane to the intended purpose of the grant. The application itself consists of a 2-page statement of grant purpose, an affiliation letter from the institution abroad with whom the applicant plans to collaborate, a 1-page personal statement, and 3 reference letters. Depending on the proposed country of study, there may also be certain language fluency requirements. Applications are submitted electronically in the fall prior to the fellowship, with decisions made in spring of the following year. If accepted, the grant covers round-trip airfare to the country of study, a living stipend, funds for research supplies and excess baggage, a 4-day region-specific orientation program in Washington, DC, prior to departure, an in-country orientation upon arrival, and a midyear conference where grant awardees can present their preliminary research findings.

The Fogarty Global Health Program for Fellows and Scholars is an 11-month award funded by the National

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Institutes of Health Fogarty International Center. The fellowship is geared toward U.S. medical trainees (doctoral students, post-doctoral fellows, and junior faculty) who are seeking mentored clinical research opportunities in low- and middle-income countries (LMICs). Applicants from LMICs are also eligible to apply. Five consortia, each composed of 4 U.S. universities, accept applications and administer the program. Some consortia accept applications from external applicants, whereas others do not (Table 1) (7). I submitted my application through the Vanderbilt, Emory, Cornell, and Duke (VECD) consortium because Northwestern University is not included in any of the consortia. The application itself consists of a 1,200-word research proposal, essay questions describing the applicant's prior research experience, prior work in resource-limited settings, career goals, a biographical sketch of both the applicant and the applicant's primary mentor, and at least 2 letters of support. Applications are due on December 1 of each year, with decisions made in spring of the following year. If accepted, the grant includes 11 months of mentored research training support at an LMIC

training site and a 1-week orientation and workshop at the National Institutes of Health Campus in Bethesda, Maryland.

I was fortunate to receive and to be able to accept both of these awards, while taking care not to duplicate funding. In my final arrangement, I received most of my research support, including salary, from Fogarty, whereas the Fulbright Award has provided travel funds, moving costs, and research supplies.

My research training in India has been an invaluable learning experience, because it has encouraged independence and initiative within a supportive and collaborative research framework. Under the guidance of the Centre for Chronic Disease Control and Cardiological Society of India-Kerala Chapter, I am studying pre-hospital systems of care for patients with acute coronary syndromes in the south Indian state of Kerala. My project combines both qualitative and quantitative research methodologies to study facilitators of and barriers to optimal pre-hospital care in this patient population. For the qualitative portion, I have conducted focus group discussions and in-depth interviews with a variety of acute

TABLE 1 List of 5 Fogarty Global Health Training Consortia, the Institutions Each Includes, and Applicant Eligibility

Consortium	Consortia Institutions	Sites	Are Applicants External to the Consortium Eligible?	U.S. Citizens/Permanent Residents			LMIC Citizens		
				Junior Faculty	Post-Doctoral Fellows	Doctoral/Senior Professional Students	Junior Faculty	Post-Doctoral Fellows	Doctoral/Senior Professional Students
VECD Fogarty Global Health Fellowships	Vanderbilt University, Emory University, Duke University, Cornell University	Bangladesh, Brazil, Mexico, Rwanda, Zambia, Vietnam, China, Sri Lanka, South Africa, Peru, Haiti, Tanzania, Kenya, India	External applicants restricted				X	X	X
			External applicants welcome	Not eligible	X	X			
Global Health Equity Scholars Fellowship	UC Berkeley, Florida International University, Stanford University, Yale University	Ethiopia, Kenya, Uganda, Zimbabwe, Bangladesh, China, India, Malaysia, Russia, Ukraine, Brazil, Nicaragua, Peru, Trinidad & Tobago	External applicants restricted	X	X	X	X	X	X
			External applicants welcome						
GloCal Health Fellowship	UC San Francisco, UC San Diego, UC Los Angeles, UC Davis	Bangladesh, Brazil, Chile, China, Ethiopia, Guatemala, India, Kenya, Mexico, Mozambique, Panama, Peru, Uganda, Tanzania, Ukraine, Zimbabwe	External applicants restricted	X		X	X	X	Not eligible
			External applicants welcome		X				Not eligible
UJMT Fogarty Global Health Fellowship	University of North Carolina-Chapel Hill, Johns Hopkins University, Morehouse School of Medicine, Tulane University	Argentina, Bangladesh, Brazil, China, India, Malaysia, Ghana, Malawi, Peru, South Africa, Swaziland, Tanzania, Thailand, Uganda, Zambia	External applicants restricted				X	X	Not eligible
			External applicants welcome	X	X	X			
Northwestern Pacific Global Health Research Fellows Training Consortium	University of Washington, University of Michigan, University of Minnesota, University of Hawaii	Kenya, Uganda, Ghana, Peru, Thailand, China, Cameroon	External applicants restricted				X	X	X
			External applicants welcome	Not eligible	X	X			

LMIC = low- and middle-income country; UJMT = University of North Carolina at Chapel Hill, Johns Hopkins, Morehouse, Tulane; VECD = Vanderbilt, Emory, Cornell, Duke.

coronary syndromes providers, including cardiologists, emergency department physicians, coronary care unit nurses, emergency department nurses, ambulance paramedics, and Kerala's director of the Department of Health Services. The quantitative portion of my proposal collects pre-hospital data as part of the ACS QUIK (Acute Coronary Syndrome: Quality Improvement in Kerala) clinical trial that was launched in Kerala in November 2014 (NCT02256657). This trial, which includes 63 hospitals throughout the state, aims to enroll 15,750 patients over the next 2 years. Finally, I am conducting a systematic policy review of pre-hospital acute coronary syndrome policies in India by obtaining information from governmental portals, like the National Rural Health Mission of the Ministry of Health and Family Welfare, and cardiology professional organizations, like the Cardiological Society of India and the Indian College of Cardiology.

While in India, I have also had the opportunity to participate in various other collaborative activities, including health care advocacy and training work. In late 2014, I led a group that submitted an application to add clopidogrel to the World Health Organization's Model List of Essential Medicines, a list that guides national formulary decisions in LMICs and, thus, increases access to and availability of essential medicines. Additionally, my affiliation with the Public Health Foundation of India through the Centre for Chronic Disease Control has given me the opportunity to teach classes on health communication and promotion to physicians and nurses from rural communities in the state of Karnataka, who are enrolled in a 1-year degree course to gain additional training in public health to apply to their communities. Finally, I have helped to manage logistics for health care providers at ACS QUIK-participating hospitals to enroll

in and complete online training modules in patient safety, improvement capability, and family-centered care from the Institute for Healthcare Improvement, with the end goal of their earning a formal certification.

My time in India has been an incredibly valuable experience, not only to enrich my research training and help set a path where I can marry my interests in interventional cardiology and global health, but to also build collaborative relationships that will help advance care locally. Along the way, I have developed research skills in qualitative methods that, as a future interventional cardiologist, I can apply to process evaluations that assess interventions and influence the design of clinical trials. My work in essential medicines opens the door to potential future opportunities in health care advocacy and policy-making. Although the logistics of planning nearly a year abroad in the midst of a busy clinical fellowship can be challenging, in my own experience, the breadth of my research training has been an incomparable opportunity. Long term, I hope that these collaborations will extend beyond Kerala and will encourage the bidirectional transfer of information to improve the quality of health care delivery in the United States as well as in India. For fellows interested in pursuing a career in global cardiovascular health, the Fulbright and Fogarty grants provide a structured and mentored funding pathway for research training.

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RESPONSE: Engaging in Global Cardiovascular Health Research

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The landscape of global cardiovascular health research has transformed over the past decade, and it continues to evolve. A decade ago, there were very few funding opportunities for investigators interested in global cardiovascular health research, and relatively few mentors who had practical, on-the-ground experience. Over the past several years, our professional community has seen the proliferation of funding opportunities targeting trainees and junior investigators, including the Fogarty Global Health Program for Fellows and Scholars and the Fulbright U.S. Student Award, as described by Dr. Patel. In addition, the Fogarty International Research Scientist Development Award now includes among its K award recipients several individuals focusing on global cardiovascular health issues. The National Heart, Lung, and Blood Institute took a brave and significant step by creating 11 Centers of Excellence for Cardiovascular and Pulmonary Disease Research in low- and middle-income countries around the world (1), and it continues to support productive research enterprises focusing on global cardiovascular health. The National Heart, Lung, and Blood Institute is also a founding member of the Global Alliance for Chronic Diseases, which has established a network of research teams that span the globe, addressing hypertension, diabetes, and other chronic diseases. In addition, there are several nongovernmental organizations, such as the Doris Duke Charitable Foundation, that have also created opportunities for trainees to engage in meaningful cardiovascular research projects worldwide. Thus, the opportunities to engage in global cardiovascular research are much more available and accessible to trainees and junior investigators.

However, to truly *engage* requires grit, effort, self-reflection, partnership, and humility. Here, I offer a few

reflections on engagement in global cardiovascular health research. While the funding opportunities are present, Dr. Patel makes clear that availing of them requires time, planning, and a lot of hard work. In addition, there are potential challenges and obstacles, even once funding is obtained and the project gets initiated. These can span the gamut from logistical, to cultural, to team dynamics, and to personal. Thus, time for self-reflection is critical to maintain balance and motivation. If it is difficult, it is worth it. In the process, our family, friends, collaborators, colleagues, and mentors form a true community to whom we can turn for guidance, advice, reassurance, constructive criticism, and partnership. Nearly without exception, those of us engaged in this field recognize that “we cannot go it alone.” We recognize that the entire spectrum of activity is important, that each person has a role to play, and that we are, therefore, interconnected and interdependent in a mutually supportive manner.

Ultimately, this type of engagement will help each of us learn who we are; what our relationship is to our work, as well as our relationship to our family and community; and, most importantly, what our relationship is to the world. This, of course, is not unique to global cardiovascular health research, but it is the promise of true engagement in any field.

Dr. Vedanthan is supported by the Fogarty International Center of the National Institutes of Health under Award Number K01 TW 009218-04. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

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